

Annual Fire Weather Operations Report – 2015

National Weather Service Reno, Nevada

1. Participants in the WFO Reno Fire Weather Program:

Fire Weather Program Leader:	Alex Hoon (IMET)
Fire Weather Program Assistants:	Edan Weishahn (GF), Jim Wallmann (IMET), Chris Smallcomb (WCM)
All operational Forecasters:	MIC, WCM, SOO, 5 Senior Forecasters and 6 General Forecasters.
Hydrometeorological Technicians and Meteorological Interns:	3 HMT's and 1 Met Intern.

The entire management team and operational staff at WFO Reno participate in the fire weather program. All involved with fire weather forecast and warning operations complete annual fire weather training, which includes an on-site Fire Weather workshop and a written Fire Weather Drill.

2. Season Duration

Pre-Season/Early Season Overview

For the fourth straight winter, very dry conditions prevailed for the Sierra and western Nevada. Total precipitation and snowpack for the 2014-2015 winter season was far worse than the preceding three winters, setting records which go back about 100 years for the least amount of snow. As 2015 began, Sierra snowpack totals were already below average, ranging from 45% of normal in the Tahoe basin to 65-70% elsewhere. The first three months of 2015 were among the warmest and driest on record, with virtually no snow cover below 7000 feet. By the end of March, the snowpack totals were at historic lows with only 2 to 4 percent of normal snow amounts in the Truckee and Carson basins. The Tahoe and Walker basins were also in very poor shape with snowpack only about 15-20% of normal.

A strong storm brought heavy rain and high elevation snow to the region February 6-8, but before the precipitation occurred, high winds combined with an unusually dry air mass and fuels to spread two large wildfires in Mono County on the 6th. The larger fire, the "Round" fire, burned over 6500 acres and destroyed 40 homes in extreme southern Mono County. The only other notable precipitation event in the first three months of 2015 occurred on the final day of February, when portions of the Sierra received 1-2 feet of snow, with several inches to a foot of snowfall in the Lake Tahoe basin and into portions of western Nevada.

Forecast Operations

The 2015 fire season began April 13 with Fire Weather Forecasts issued twice per day and dedicated shift coverage 7 days a week. This date was the earliest start to Reno's fire season, due to continued extreme drought conditions as below normal snowpack and precipitation occurred for the fourth straight winter.

WFO Reno continues to host a coordination call at 945 am involving local, state, and federal agencies within the Reno CWA. This call occurred every Monday and Friday during the fire season when fuels were sufficiently cured to sustain fire activity, and expanded to additional days if Red Flag conditions were occurring or expected. WFO Reno participated in morning coordination calls with Northern California, Southern California and/or Great Basin GACCs on an event-driven basis. Additional communication of significant fire weather information was established through increased use of the Weather Story web graphics, which were posted on the WFO Reno web page and also distributed through social media networks (Facebook and Twitter). For high impact or more complex fire weather situations, multimedia web briefings were used, which were created and posted on the YouTube web site.

After the coordinated end to the fire season on October 31, the dedicated Fire Weather shift was discontinued and the Fire Weather Forecast changed to a shortened version issued only once a day. NWS Reno continues to provide Spot Forecasts 24 hours a day, 365 days a year.

3. Verification Statistics and Graphs

Red Flag Warnings

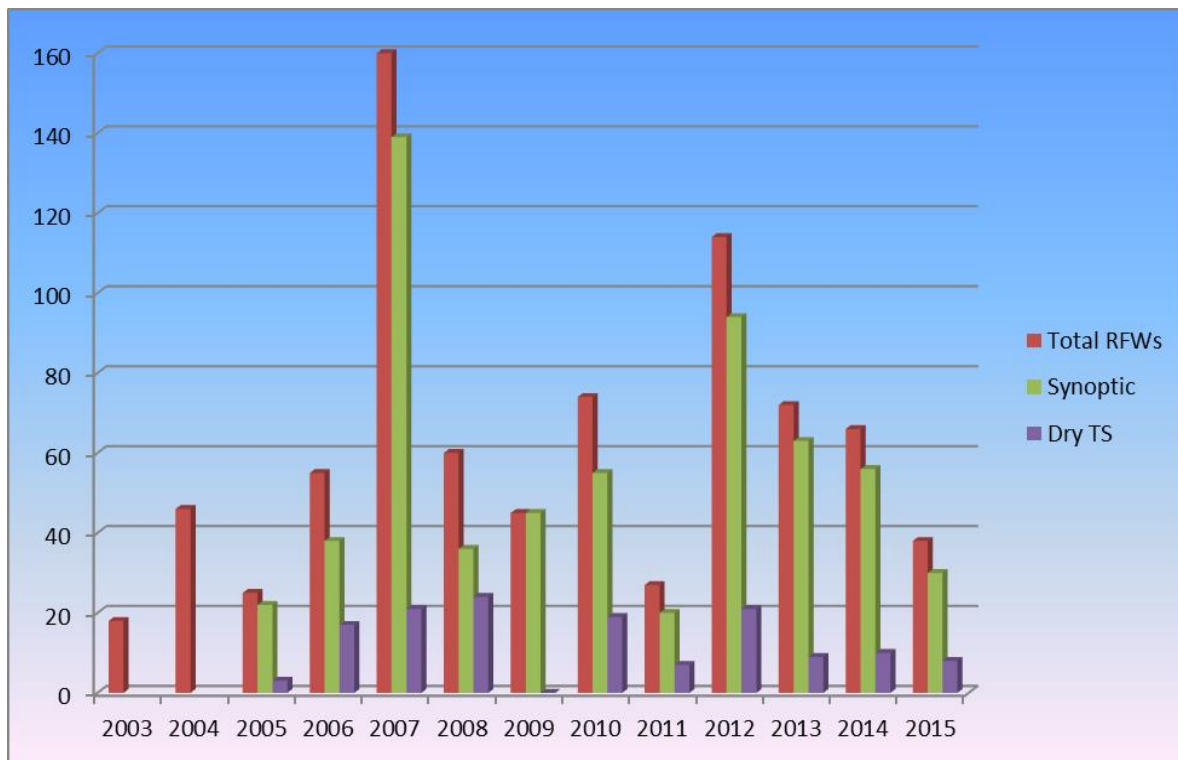
See the following tables for red flag warning and fire weather watch statistics.

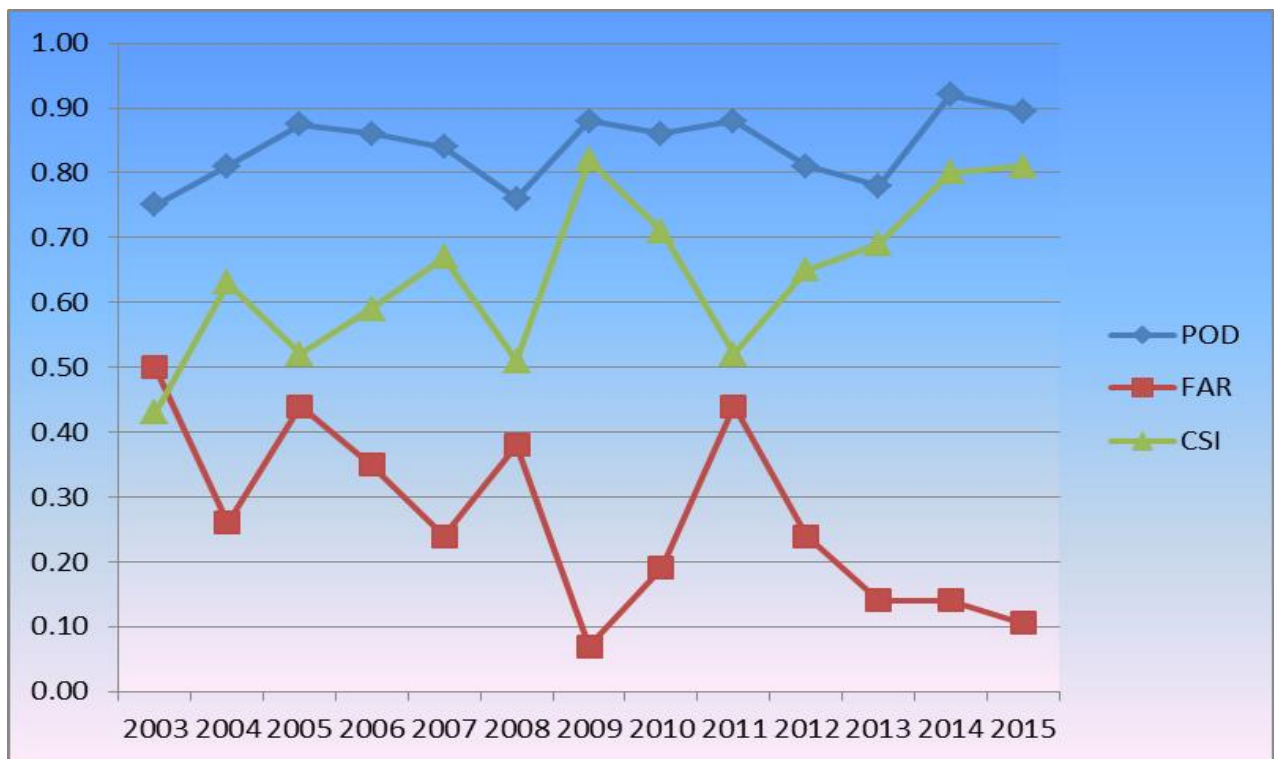
POD (Probability of Detection), FAR (False Alarm Ratio), CSI (Critical Success Index)

2015 – Reno Total Red Flag Statistics

Total Red Flag Event Days	Red Flag Warnings Issued	Verified Red Flag Warnings	Unverified Red Flag Warnings	Missed Events	Average Lead Time (hours)
7	38	34	4	4	25.6

P.O.D.	F.A.R.	C.S.I.
.895	.105	.81





2015 – Reno Fire Weather Watch Statistics

Watches Issued	Warnings Preceded by Watches	Verified Watches
34	34	30

Additional details are in MS Excel file ***2015REDF.xls.***

The file contains:

Sheet 1: Summary of Red Flag Warnings and Fire Weather Watches.

Sheet 2: Summary of Spot Forecasts and IMET Dispatches.

Spot Forecasts

WFO Reno issued 532 spot weather forecasts in 2015. 400 of the spots were in support of prescribed burn operations with 125 spot forecasts for wildfires. There were also 4 spots in support of HAZMAT and 3 in support of Search and Rescue. The average return time on wildfires was 24 minutes.

4. Monthly Summary of Weather and Fire Activity in the Reno Forecast Area

For details on large fire activity in the Reno CWA, see the accompanying table titled “Large Fires in Reno CWA for 2015 Fire Season” and “REV Fire History”.

April:

The first day of the fire season began with a Red Flag Warning for Mono County as a strong cold front brought wind gusts above 50 mph with poor overnight humidity recovery for the morning of the 14th. The final week of the month started cooler with 6-10 inches of snow in the Sierra and the Tahoe basin, with light to moderate rain over northeast CA on the 24th and 25th. No large wildfires occurred in the month of April.

May:

Between the 6th and 8th, an unusually cool low pressure dropped into northern California. This low brought light rain to lower elevations, with snow down to around 6000 feet in the Sierra. The heaviest snow occurred in Mono County, with some locations receiving around 1 foot of new snow. This wet and cool pattern with mountain snow would become a recurrent theme for much of the month. As a result of this prolonged cool and wet pattern, a widespread green-up of vegetation took place, which limited ignition or spread of wildfires through the month. No large wildfires occurred during the month of May.

June:

Cooler weather returned for early June. After the 10th, the weather pattern then changed to a more typical summer regime, with temperatures climbing above normal for the middle of the month. On the 22nd, a Red Flag Warning was issued as low pressure moving into the Pacific Northwest brought increased winds with gusts near 40 mph along with lower humidity. During the final week of June, building high pressure brought hot temperatures, increased heating also led to thunderstorm development starting on the 26th. A Red Flag Warning was in effect on the 27th due to potential for dry lightning strikes. While some fire starts occurred, none grew into large fires.

Only one large fire was reported, but it was the largest fire in acreage burned for the 2015 season. The "Washington" Fire was ignited by lightning on the 19th, then strong winds and dry conditions produced rapid fire spread for the next few days. The fire affected Monitor Pass and threatened Markleeville. The fire burned almost 18,000 acres before being effectively contained by July 7.

July:

The hot weather from late June carried into early July, with isolated to scattered thunderstorms for the first three days of the month. Then the weather pattern took another dramatic change to cooler and wetter conditions from the 4th through the 10th. As high pressure weakened, it left behind a moist air mass while low pressure developed off the California coast. The most active days were the 5th through 9th, with heavy rain producing multiple reports of urban or flash flooding, including the recent burn scar from the Washington fire. Most of the eastern Sierra received significant rainfall with several days of below normal temperatures (including light snow accumulations on the 8th at Tioga Pass, elevation 9500-10,000 feet), which resulted in a rare mid-summer green-up of vegetation across much of the region.

Despite the widespread thunderstorms during the first 10 days of the month, none of the lightning ignitions became large fires. One large fire was ignited during the active thunderstorm day of the 21st, the "Fort Sage" fire in extreme southeast Lassen County which was contained two days later at 293 acres.

August:

A cooler low pressure moved across the region on the 7th, bringing areas of rain and thunderstorms to much of the region. Most of the rainfall was light, except for portions of west central Nevada where over 0.50 inch of steady rain fell around Fallon and Lovelock. A shift to a much warmer and drier weather pattern began on the 10th and continued through the middle of the month. A low pressure moving across the Pacific Northwest produced gusty winds on the 13th and 14th, with Red Flag Warnings in effect. Above normal temperatures continued through late August, until a strong low pressure brought windy conditions with Red Flag Warnings in effect on the 29th.

Despite widespread lightning activity in the first few days of August, all fires ignited by lightning remained small. One large fire not associated with lightning, the "Dodge" fire,

began on the 3rd in northeast Lassen County and burned over 10,000 acres before being contained on the 18th. Two more large fires started during the middle of the month, the “Walker” fire in western Mono County (not associated with lightning) and the lightning ignited “Cold Springs” fire in extreme southeast Churchill County. Each of these fires burned between 3500 and 4000 acres before being contained later in the month.

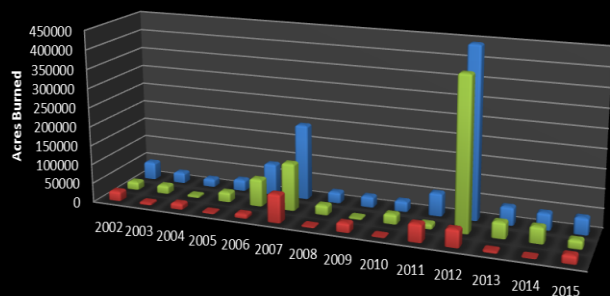
September:

A series of low pressure systems brought windy conditions, cooler temperatures, and generally dry conditions to the region during the first week of the month, with Red Flag Warnings in effect for parts of the region on the 2nd and 4th. Windy conditions occurred on the 14th and 15th, but humidity values also increased so no Red Flag warnings were issued. No large wildfires occurred during the month of November.

October:

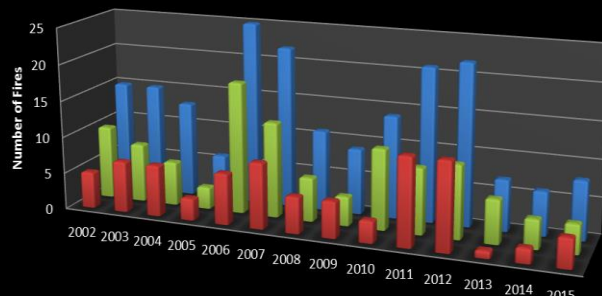
The month began with widespread wetting rains to much of the region, as the increased Pacific moisture from the end of September combined with a low pressure moving across the Sierra. Rainfall totals were generally between 0.10 to 0.50 inch, with some locations in northeast CA and western NV receiving up to 0.75 inch on the first two days of the month. Another low pressure brought wetting rains across the Lake Tahoe basin and western NV on the 17th and 18th, mainly south and east of a Lovelock-Carson City-Bridgeport line, where rainfall amounts up to 0.75 inch occurred. Lighter rain fell across the remainder of the region. November began with a strong Pacific storm system which brought widespread wetting rains (above 1 inch in many areas). Moderate to heavy snowfall accumulated in the Sierra, and light snow to lower elevations, which coincided well with the coordinated end of the 2015 fire season. No large wildfires occurred during the month of October.

**REV Large Fire Acreage
2002-2015**



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-Lightning Large Fires	25480	63201	5844	3516	11322	3808	3191	2403	2037	4664	4563	5369	10642	1292
Lightning Large Fires	21210	18105	5360	2580	1594	2346	5060	4186	5308	2824	9378	1485	1993	2014
All REV Large Fires	46690	81306	1204	29316	2910	9727	8251	2823	2734	5946	4441	6854	1299	3306

**REV Total Number of Large Fires
2002-2015**



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Non-Lightning Large Fires	5	7	7	3	7	9	5	5	3	12	12	1	2	4
Lightning Large Fires	10	8	6	3	18	13	6	4	11	9	10	6	4	4
All REV Large Fires	15	15	13	6	25	22	11	9	14	21	22	7	6	8

5. IMET Dispatches

WFO Reno has two certified IMETs on station, Jim Wallmann and Alex Hoon.

IMET Dispatches for Jim Wallmann:

1. Gasquet Complex (NW CA), August 23-September 7.

IMET Dispatches for Alex Hoon:

1. Washington (Alpine County, E CA), June 22-July 4.
2. Fork Complex (NW CA), August 4-18.

IMET Dispatches from other WFO's for fires in Reno's CWA: NONE

6. Liaison Work and Training

Alex Hoon, Edan Weishahn, Chris Smallcomb and Jim Wallmann provide weather briefings at monthly Sierra Front Interagency Cooperators and Lake Tahoe Regional Chiefs Association meetings. Agencies represented include Humboldt-Toiyabe NF, Tahoe NF, Lake Tahoe Basin Management Unit, BLM, CALFIRE, Nevada Department of Forestry, BIA, Reno Fire Dept, Sparks Fire Dept, Carson City Fire Dept, and numerous other local fire districts. Several FMOs from the area regularly attend the meetings.

Alex Hoon taught S-290 at the Washoe County Regional Training Center (EOC)

Edan Weishahn and Chris Smallcomb attended the Great Basin AOP meeting in Salt Lake City 2/19-2/20

Alex Hoon led a CA Pre-AOP meeting conference call on 3/4. Edan Weishahn also participated.

Jon Mittelstadt and Chris Smallcomb dialed into the CA AOP Meeting on 3/11-3/12.

Alex Hoon and Jim Wallmann attended the S-490 class on 3/9-3/13 at the McClellan Fire Training Center.

Alex Hoon and Jim Wallmann did IMET training via telework and conference call 3/24-3/27.

Jon Mittelstadt, Brian Brong, Chris Smallcomb, Edan Weishahn, Alex Hoon, and Dawn Johnson conducted tours of WFO Reno during the Wildland Urban-Interface Conference.

Alex Hoon helped facilitate the sandtable exercise at the Wildland Urban Interface Conference on 3/26.

Chris Smallcomb and Alex Hoon provided Carson Fire BLM with a season outlook on 4/16.

Alex Hoon taught the weather portion of S-390 at the Washoe County Regional Training Center on 4/20.

Dawn Johnson attended the S-390 class at the Washoe County Regional Training Center from 4/20-4/24.

Alex Hoon provided a weather refresher to the Black Mountain Hotshots, Humboldt Toiyabe National Forest on 4/21.

Alex Hoon attended a Plumas National Forest fire management meeting in Reno on 4/28.

Jim Wallmann attended the Sierra Front sandtable exercise at the Douglas county fairgrounds on 4/30.

Edan Weishahn worked with the "Living With Fire" program to have a social media campaign May 11-15th.

Chris Smallcomb presented at the Governor's Wildland Fire Briefing on 5/4.

Alex Hoon attended the Plumas National Forest stakeholders meeting on 5/5.

Alex Hoon presented a Fire Wx refresher to the Plumas Hotshots, Plumas National Forest on 5/5.

Alex Hoon presented a Fire Wx refresher to the Nevada Division of Forestry and Tallac hotshot crew, Lake Tahoe Basin Management Unit on 5/6.

Alex Hoon participated in media training day at the University of Nevada campus on 5/6.

Alex presented a Fire Wx refresher to the Silver State Hotshots, BLM Nevada on 5/7.

On May 7th, Edan Weishahn and Brian Brong led the fire weather workshop, which included pre-workshop materials and a fire WES case that had to be completed. Chris Smallcomb, Marvin Boyd, Tony Fuentes, and Alex Hoon presented on the following topics: Burn severity maps from the Round fire, a social media review, lake wind advisory discussion, and strong downwards winds from super dry environments. Ryan Bauer, a USFS Air Resource Advisor, also presented about his position and how he would like to work with the NWS. Pat Arnott and Heather Homes, UNR air quality researchers also were in attendance.

Edan Weishahn and Chris Smallcomb attended the Sierra Front field generals meeting on 5/14 which also included a staff ride for the Waterfall fire.

Alex Hoon presented a Fire Wx refresher to the Diamond Mountain hotshots, BLM NorCal in Susanville, CA on 5/18.

Alex Hoon presented a Fire Wx refresher to the Ravendale Helitack crew on 5/18.

Alex Hoon presented a Fire Wx refresher to the USFS Humboldt-Toiyabe Bridgeport fire crew on 5/19.

Alex Hoon presented a seasonal outlook to NV Energy on 5/19.

Jim Wallmann presented the Yarnell weather talk to the BLM in Carson City on 5/19.

Alex Hoon attended the Winnemucca dispatch meeting on 5/12.

Edan Weishahn and Diana Simpson presented at the North Tahoe Fire Officers meeting on 5/21.

Alex Hoon presented at the Plumas NF Dispatchers training day on 6/4. Alex Hoon presented at the Susanville NF Dispatchers training on 6/4.

Edan Weishahn, Brian Brong, Diana Simpson, and Christine Shifa (HNX) attended the Sierra Front Meeting in Meyers, CA on 7/16. Edan Weishahn presented the seasonal outlook.

Met with Tahoe NF, Lake Tahoe Basin Management Unit, Humboldt-Toiyabe NF, and local air quality districts for a post-fire season meeting. Chris Smallcomb and Alex Hoon met with Washoe Air Quality folks and talked about program issues for the winter months. Alex contacted USFS Air Resources Specialist to make contact for future fire/smoke issues.

Alex Hoon and Chris Smallcomb made an outreach trip to Mono County and Inyo County. Met with new Inyo National Forest and Inyo Dispatch leadership. We talked about 2015 fire season in review, red flag criteria, and collaboration.

Alex Hoon taught another S-290 class in October for the Plumas NF.

Jim Wallmann set up outreach booth at South Lake Tahoe Fire Fest. Around 500 people attended from the Lake Tahoe area and learned about how National Weather Service Reno supports firefighters.

Forecasters coordinated with local fire agencies with respect to fuel moistures in the CWA in the weeks before fire season started.

All forecasters continued to send out e-mails for local fire leadership throughout the fire

season, giving them updates several times per week on upcoming events and forecast thinking.